

**What Is Claimed Is:**

1. An apparatus for producing ozone by electrolysis of water, the apparatus comprising:

- a) an anode for producing oxygen, ozone by electrolysis in water;
- 5 b) a cathode for producing hydrogen by electrolysis in water;
- c) a solid polymer electrolyte membrane disposed between the anode and the cathode for transferring hydrogen ion produced by the electrolysis; and
- d) an auxiliary electrode disposed between the cathode and the solid polymer electrolyte membrane, wherein the auxiliary electrode passes hydrogen ion produced at
- 10 the anode through the cathode, and wherein a scale is formed on the surface of the auxiliary electrode by a reaction of  $2+$  cation and OH-ion produced at the cathode, thereby alleviating scale formation occurring on the surface of the cathode.

2. An apparatus according to claim 1, wherein the auxiliary electrode has a

15 mesh shape.

3. An apparatus according to claim 1, wherein the auxiliary electrode is formed of stainless steel, titanium, platinum or platinum coating.

20 4. An apparatus according to claim 1, further comprising a spacer for providing a gap between the solid polymer electrolyte membrane and the anode.

5. An apparatus according to claim 4, the spacer is formed of teflon.

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